

B3 19. (amended) An isolated polypeptide [according to claim 3], wherein said polypeptide is a fragment of a polypeptide according to claim 16, having cell motility activity.

REMARKS

Applicants respectfully request entry of the instant amendment. The amended claims do not introduce new subject matter, nor do the amendments raise new issues of patentability.

Claims 3-6, 11, 12 and 16-19 are currently pending in the instant application.

Regarding the submitted Information Disclosure Statement, applicants provide herewith the references unavailable to the Examiner. Also enclosed is another PTO-1449 form listing these references for the Examiner's initials after review of these references.

Regarding the sequences which were not identified by SEQ ID Nos, applicants have added sequence identification numbers in the sections of the specification indicated by the Examiner. In the figure legend of Fig. 18, applicants reference the Buckley et al (1990) article for the PC-1 sequence. This sequence is not claimed, nor is it considered the instant invention. The Buckley reference is part of the original specification. Therefore, its reference in the legend of Figure 18 does not constitute new matter. Reconsideration and withdrawal of this objection is respectfully requested.

Claims 3, 5, 11, 12 and 16-19 have been rejected under 35 U.S.C. §112, first paragraph as not enabling for any autotaxin from any source, mutant, species homologue or variant thereof. Applicants respectfully disagree with this rejection.

In particular, the Examiner asserts that only one form of autotaxin is disclosed, i.e. autotaxin isolated from human melanoma cells. Applicants respectfully direct the

Examiner's attention to SEQ ID NOs: 34, 36, 38, 67 and 69. These autotaxin sequences represent the amino acid sequences derived from different sources, including human melanoma, teratocarcinoma and normal human liver cells. Thus, the genus of autotaxin sequences are enabled by the disclosure of a representative number of members of the genus. *See University of California, v. Eli Lilly and Co.* 43 USPQ.2d 1398, 1406 (Fed. Cir. 1997). Reconsideration and withdrawal is respectfully requested.

Claims 3, 5, 16 and 17 have been rejected under 35 U.S.C. §112, second paragraph for failing to claim that which applicant regards as the invention. In particular, the Examiner asserts that the recitation "corresponding to" is unclear and confusing. Applicants respectfully disagree with this rejection.

The instant claims define the autotaxin polypeptide in terms of either its activity (i.e. cell motility) or its sequence. One skilled in the art understands what proteins are encompassed by these claims. However, in order to expedite the prosecution of the instant application, applicants have amended the claims to address the Examiner's concerns. Applicants respectfully request reconsideration and withdrawal of this rejection.

Claims 3, 16 and 18 have been rejected under 35 U.S.C. §102(b) as being anticipated by Buckley et al (1990). Applicants respectfully disagree with this rejection.

The Examiner asserts that Buckley describes a 15 amino acid sequence fragment of SEQ ID NO:34. Buckley does not teach or suggest that the 15 amino acid fragment embedded within the PC-1 sequence has any cell motility activity. Thus, Buckley does not teach or suggest the claimed invention. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 3, 16 and 18 have been rejected under 35 U.S.C. §102(b) as being anticipated by Oda, et al ((1991). Applicants respectfully disagree with this rejection.

The Examiner asserts that Oda teaches a protein which comprises 12 amino acids of SEQ ID NO:35. Oda does not teach or suggest that the 12 amino acid fragment embedded within the PC-1 sequence has any cell motility activity. Without the benefit of the instant invention, one skilled in the art could not have ventured to guess that such a 12 amino acid peptide was either a fragment of autotaxin or that it may have cell motility activity. Thus, Oda does not teach or suggest the claimed invention. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 3, 16 and 18 have been rejected under 35 U.S.C. §102(b) as being anticipated by Culp et al (1985). Applicants respectfully disagree with this rejection.

The Examiner contends that Culp teaches a protein which comprises 10 amino acids of SEQ ID NO:69. Culp does not teach or suggest that the 10 amino acid fragment embedded within the phosphodiesterase protein has any cell mobility activity. Without the benefit of the instant invention, one skilled in the art could not have guessed that such a peptide was either a fragment of autotaxin or that it may have cell motility activity. Thus, Culp does not teach or suggest the claimed invention. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 3, 4, 16 and 18 have been rejected under 35 U.S.C. §102(b) as being anticipated by Lawrence et al (1990). Applicants respectfully disagree with this rejection.

The Examiner contends that the reference teaches a protein with comprises all of SEQ ID NO:1. Lawrence does not teach or suggest that the 5 amino acid fragment embedded within the HHV-6 genome has any cell mobility activity. Without the benefit of the instant

invention, one skilled in the art could not have guessed that such a peptide was either a fragment of autotaxin or that it may have cell motility activity. Thus, Lawrence does not teach or suggest the claimed invention. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 3, 4, 16 and 18 have been rejected under 35 U.S.C. §102(b) as being anticipated by Zierer et al (1990). Applicants respectfully disagree with this rejection.

The Examiner contends that the reference teaches a protein with comprises all of SEQ ID NO:3. Zierer does not teach or suggest that the 5 amino acid fragment embedded within the DNA binding protein-II from *T. thermophilus* has any cell mobility activity. Without the benefit of the instant invention, one skilled in the art could not have guessed that such a peptide was either a fragment of autotaxin or that it may have cell motility activity. Thus, Zierer does not teach or suggest the claimed invention. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 3, 4, 16 and 18 have been rejected under 35 U.S.C. §102(b) as being anticipated by Henderson et al (1989). Applicants respectfully disagree with this rejection.

The Examiner contends that the reference teaches a protein with comprises all of SEQ ID NO:4. Henderson does not teach or suggest that the 5 amino acid fragment embedded within the ORF of a mini-circle from *Streptomyces* has any cell mobility activity. Without the benefit of the instant invention, one skilled in the art could not have guessed that such a peptide was either a fragment of autotaxin or that it may have cell motility activity. Thus, Henderson does not teach or suggest the claimed invention. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 3, 4, 16 and 18 have been rejected under 35 U.S.C. §102(b) as being anticipated by Stainthorpe et al (1990). Applicants respectfully disagree with this rejection.

The Examiner contends that the reference teaches a protein with comprises all of SEQ ID NO:27. Stainthorpe does not teach or suggest that the 5 amino acid fragment embedded within the soluble MMO component C protein has any cell mobility activity. Without the benefit of the instant invention, one skilled in the art could not have guessed that such a peptide was either a fragment of autotaxin or that it may have cell motility activity. Thus, Stainthorpe does not teach or suggest the claimed invention. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 3, 4, 16 and 18 have been rejected under 35 U.S.C. §102(b) as being anticipated by Knight et al (1990). Applicants respectfully disagree with this rejection.

The Examiner contends that the reference teaches a protein with comprises all of SEQ ID NO:28. Knight does not teach or suggest that the 5 amino acid fragment embedded within the large subunit of ribulose 1,5-bisphosphate carboxylase has any cell mobility activity. Without the benefit of the instant invention, one skilled in the art could not have guessed that such a peptide was either a fragment of autotaxin or that it may have cell motility activity. Thus, Knight does not teach or suggest the claimed invention. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 5, 6 and 17 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Buckley, Oda, Culp, Lawrence, Zierer, Stainthorpe and Knight in view of US Patent 5,003,047 to Yarmush. Applicants respectfully disagree with this rejection.

As discussed above, none of the references (Buckley, Oda, Culp, Lawrence, Zierer, Stainthorpe and Knight) teach or suggest that the peptides are fragments of autotaxin and/or

that they possess cell motility activity. The added reference, Yarmush does not teach or suggest this missing and essential teaching. How could one skilled in the art possible recognize a peptide derived from the HHV-6 genome, for example, as one derived from autotaxin? How could one skilled in the art recognize that such a peptide may have cell motility activity? A reading of the claim as a whole makes clear that the cited references do not teach or suggest the claimed invention. It appears the Examiner is improperly applying hindsight to reach the present invention. Applicants respectfully request reconsideration and withdrawal of this rejection.

Finally, claims 3-6, 11, 12 and 16-19 have been rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of US Patent no 5,449,753 in view of US Patent 5, 003,047 to Yarmush. Applicants respectfully disagree with this rejection. However, in order to expedite the prosecution of the instant application, applicants submit herewith a terminal disclaimer. Reconsideration and withdrawal of this objection is respectfully requested.

Applicants respectfully request reconsideration and urge that the present claims are in condition for allowance. Early and favorable action is earnestly solicited.

No additional fee is believed to be necessary.

The Commissioner is hereby authorized to charge any additional fees which may be required for this response, or credit any overpayment to Deposit Account No. 13-4500, Order No. 2026-4149US3.

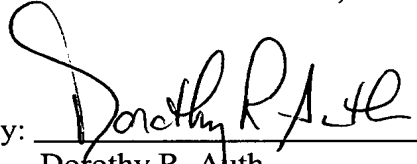
In the event that an extension of time is required, or which may be required in addition to that requested in a petition and for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response

timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 13-4500, Order No. 2026-4149US3. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.

Respectfully submitted,

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Dated: June 9, 1999

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